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filings from the mixture of them with other filings, or metallic particles, placed in the trays or end-boxes, and drop them into the receiving box in the centre, which is effected by the alternate motion of a winch-handle, working the two magnetic hammers placed at the two angles of a quadrant or anchor. In proportion to the power of the magnets and to the force of the blow given by the hammers, a great quantity of iron is separated from the brass, by the alternate motion, and dropped into the receiver placed in the centre of the machine.

I have shewed the model to persons engaged in various metallic works, who gave me great encouragement by their signatures and sanction.

A new invented Reel for Mill-spun yarn.

A Reel, intended for the use of mill-spinners, has been invented by a manufacturer in Montrose, so constructed that it will not move after a thread breaks, which will entirely prevent the false tell, so much complained of in mill-spun yarn. A model, upon a small scale, is at present in the possession of the inventor, and is acknowledged by all who have seen it, to be both simple and perfect; and, however careless servants may be, it will be impossible for them, without an intended fraud, to make bad work; and more can be done with the new reel, than by the present mode of reeling.

Some remarks on materials used in bleaching, resulting from the late discoveries in chemistry, by Dr. Davy.

The acid known by the name of oxymuriatic acid, and so important in the process of bleaching, has been stated by Lavoisier, and the French chemists to be a compound of muriatic and oxygen; but Dr. Davy asserts

that it is a simple substance *sui generis*, not containing oxygen, but possessing of itself an acidifying principle when combined with an inflammable basis. Muriatic acid is, according to Dr. Davy, a compound of this principle with hydrogen. Some of the experiments exhibited in support of this opinion, are the following:—Perfectly dry oxymuriatic acid gas and hydrogen gas were burned together without any water being produced, which must have been the case had this gas contained oxygen. The result of this combination, is muriatic acid only. Phosphorus, and other inflammable substances burned in this gas, yield results very different from combinations with oxygen. When the alkalis are heated in this gas, they form what are called muriats. The oxygen of the alkalis is given out. According to Dr. Davy, muriat of soda or common salt, is a more simple substance than what is called pure soda; for the muriat of soda is the metal of soda united with what is improperly called oxymuriatic gas, but soda contains the metal united with oxygen and water. If this opinion were true, the class of muriats would be excluded from chemical compounds, but we confess we cannot see any reason why muriatic acid, what ever be its constituent parts, should not be as capable of uniting with the alkalis to form a salt, as nitric and other acids. Many eminent chemists are still unwilling to admit Dr. Davy's conclusions respecting oxymuriatic acid, or what he now calls chlorine, from its yellow colour: and the question respecting its constituent parts may still be considered as *sub-judice*. Dr. Davy has discovered a new gas, which is formed by the union of oxymuriatic or chlorine gas with oxygen, their af-

finity for each other is weak. When a stream of nitrous gas is passed into this compound gas, it unites with the oxygen and forms nitrous acid, leaving the chlorine gas unaltered in its properties.

The effect of oxymuriatic acid in bleaching he explained by the affinity of this gas for the hydrogen of water, forming with it muriatic acid, which acted on the vegetable fibre; the oxygen of the water acting at the same time on the colouring matter. The corrosive effects of muriatic acid during this process are lessened if the oxymuriat of lime be used. The oxymuriat of potash is the least prejudicial, but its price will prevent its application to the purpose of bleaching. Dr. Davy stated, he had found that the oxymuriat of magnesia may be used with great advantage; though its bleaching property is not so rapid in its operation, it is much less injurious

than oxymuriat of lime which is commonly used. The oxymuriat of magnesia will serve repeatedly for the same purpose. If heat be applied to it after it has been used, the hydrogen is expelled, and it is restored to its former state

[*London Monthly Magazine.*]

Remarks on the subject of bleaching would be very acceptable from our chemical readers. In this country, notwithstanding the expense is greater, muriat of potash is much used instead of this muriat of lime, on account of its greater safety, in case sufficient washing is not afterwards applied. In this point, there is always a considerable risque, as perhaps in none of the processes of bleaching are we more deficient, than in washing. To a neglect in this respect we are inclined to attribute most of the damages arising in bleaching in this country.

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